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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,176	01/15/2004	Richard Reynolds	830_012	4849
25191	7590	12/19/2005	EXAMINER	
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068			WEST, JEFFREY R	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.		Applicant(s)	
	10/758,176		REYNOLDS ET AL.	
	Examiner		Art Unit	
	Jeffrey R. West		2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Drawings

2. The drawing in Figure 2 is objected to because it does not have sufficiently descriptive labels. Blank boxes in drawings should be labeled descriptively unless it is a well-known component. Specifically, blank boxes "46" should be labeled "Routers".

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "90" (Figure 5a).

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to

the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The specification is objected to for the following issues:

On pages 12-13, and in corresponding Figure 8, the specification describes determining a "long term average (lt_jitter)" according to the following equation:

$$lt_jitter = (lt_jitter * P) + (abs (jitter) * (1 - P))$$

determining a "differential jitter" according to:

$$jitter_differential = abs (jitter) - lt_jitter$$

and, subsequently, determining a resulting mean opinion score in dependence on statistical analysis (i.e. average of a maximum/variance) of the resulting "differential jitter".

It is first unclear to one having ordinary skill in the art, how to use the provided equation to determine the long term average jitter.

The equation provided for determining the "long term average jitter" requires a long term average jitter as an input to the equation. Since there is no apparent value of long term average jitter to be used as an input for the right side of the equation, it is unclear to one having ordinary skill in the art how to use the equation as described.

With equation manipulation, the equation can further be analyzed. Using such equation manipulation, the following can be derived:

When $P = 1$:

$$lt_jitter = (lt_jitter * P) + (abs (jitter) * (1 - P))$$

$$lt_jitter = (lt_jitter * 1) + (abs (jitter) * (1 - 1))$$

$$lt_jitter = (lt_jitter) + (abs (jitter) * (0))$$

$$lt_jitter = (lt_jitter)$$

When $P \neq 1$:

$$lt_jitter = (lt_jitter * P) + (abs (jitter) * (1 - P))$$

$$lt_jitter - (lt_jitter * P) = (abs (jitter) * (1 - P))$$

$$lt_jitter * (1 - P) = (abs (jitter) * (1 - P))$$

$$lt_jitter = abs (jitter).$$

The result of the manipulation indicates that when $P = 1$, one having ordinary skill in the art has no way to determine the "long term average jitter" and when $P \neq 1$ the

“long term average jitter” is actually the absolute value of the jitter and not any type of average.

Turning back to the specification and drawings, it is disclosed generating a resulting mean opinion score in dependence on statistical analysis (i.e. average of a maximum/variance) of the resulting “differential jitter”. However, the “differential jitter (jitter_differential)” is defined as:

$$\text{jitter_differential} = \text{abs} (\text{jitter}) - \text{It_jitter}$$

As noted above in the equation for It_jitter, when $P=1$, the equation provides no useful result, but when $P \neq 1$, $\text{It_jitter} = \text{abs} (\text{jitter})$.

Substitution of this value in the equation for “differential jitter” reveals:

$$\text{jitter_differential} = \text{abs} (\text{jitter}) - \text{abs} (\text{jitter}) = 0.$$

Therefore the specification does not appear to adequately describe to one having ordinary skill in the art the method for determining a mean opinion score from statistical analysis of a “differential jitter” when the “differential jitter” is always zero.

Claim Objections

6. Claims 1-3 and 9 are objected to because of the following informalities:

In claim 1, line 10, to avoid problems of antecedent basis, “said packet” should be ---said intercepted packet---.

In claim 1, lines 11-12, to avoid problems of antecedent basis, “sequence of packets” should be ---sequence of intercepted packets---.

In claim 1, line 15, "characterised in that the" should be ---wherein the---

In claim 1, line 19, to avoid problems of antecedent basis, "the difference" should be ---a difference---

In claim 1, line 22, to avoid problems of antecedent basis, "the difference" should be ---a difference---

In claim 1, line 24, to avoid problems of antecedent basis, "said preceding packet" should be ---said preceding stored packet---

In claim 2, lines 3-4, to avoid problems of antecedent basis, "said differential jitter parameter for a sequence of stored packets" should be ---said differential jitter parameter for said sequence of stored packets---

In claim 3, lines 3-4, to avoid problems of antecedent basis, "said differential jitter parameter for a sequence of stored packets" should be ---said differential jitter parameter for said sequence of stored packets---

In claim 9, line 10, to avoid problems of antecedent basis, "said packet" should be ---said intercepted packet---

In claim 9, line 12, to avoid problems of antecedent basis, "sequence of packets" should be ---sequence of intercepted packets---

In claim 9, line 15, "characterised in that the" should be ---wherein the---

In claim 9, line 19, to avoid problems of antecedent basis, "the difference" should be ---a difference---

In claim 9, line 22, to avoid problems of antecedent basis, "the difference" should be ---a difference---

In claim 9, line 24, to avoid problems of antecedent basis, "said preceding packet" should be ---said preceding stored packet---

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because it includes a limitation for "extracting a set of parameters...generating an estimated mean opinion score in dependence upon said set of parameters; characterised in that the extracting step comprises the sub steps of: generating a jitter parameter...generating a long term average jitter parameter for said stored packet in dependence upon the value of said jitter parameter for said stored packet and the value of said jitter parameter for any preceding stored packets; and generating a

differential jitter parameter in dependence upon the jitter parameter and the long term average jitter differential parameter.”

In supporting this limitation, the specification indicates, on pages 12-13, and in the corresponding Figure 8 that the “long term average (lt_jitter)” is defined by the following equation:

$$lt_jitter = (lt_jitter * P) + (abs (jitter) * (1 - P))$$

the “differential jitter” is defined by:

$$jitter_differential = abs (jitter) - lt_jitter$$

and the resulting mean opinion score is generated in dependence on statistical analysis (i.e. average of a maximum/variance) of the resulting “differential jitter”.

It is first unclear to one having ordinary skill in the art, how to use the provided equation to determine the long term average jitter.

While the term “jitter” presented in the equation does reflect “the value of said jitter parameter for said stored packet and the value of said jitter parameter for any preceding stored packets”, the equation also needs a long term average jitter as an input to the equation to determine the desired long term average jitter. Since there is no apparent value of long term average jitter to be used as an input for the right side of the equation, it is unclear to one having ordinary skill in the art how to make/use the invention as claimed to “generating a long term average jitter parameter for said stored packet in dependence upon the value of said jitter

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parameter for said stored packet and the value of said jitter parameter for any preceding stored packets”.

With equation manipulation, the equation can further be analyzed. Using such equation manipulation, the following can be derived:

When $P = 1$:

$$lt_jitter = (lt_jitter * P) + (abs (jitter) * (1 - P))$$

$$lt_jitter = (lt_jitter * 1) + (abs (jitter) * (1 - 1))$$

$$lt_jitter = (lt_jitter) + (abs (jitter) * (0))$$

$$lt_jitter = (lt_jitter)$$

When $P \neq 1$:

$$lt_jitter = (lt_jitter * P) + (abs (jitter) * (1 - P))$$

$$lt_jitter - (lt_jitter * P) = (abs (jitter) * (1 - P))$$

$$lt_jitter * (1 - P) = (abs (jitter) * (1 - P))$$

$$lt_jitter = abs (jitter).$$

The result of the manipulation indicates that when $P = 1$, one having ordinary skill in the art has no way to determine the “long term average jitter” and when $P \neq 1$ the “long term average jitter” is actually the absolute value of the jitter and not any type of average.

Turning back to the invention as claimed, claim 1 requires a resulting mean opinion score to be generated in dependence on statistical analysis (i.e. average of a maximum/variance) of the resulting "differential jitter". However, the "differential jitter (jitter_differential)" is defined as:

$$\text{jitter_differential} = \text{abs}(\text{jitter}) - \text{lt_jitter}$$

As noted above in the equation for lt_jitter , when $P=1$, the equation provides no useful result, but when $P \neq 1$, $\text{lt_jitter} = \text{abs}(\text{jitter})$.

Substitution of this value in the equation for "differential jitter" reveals:

$$\text{jitter_differential} = \text{abs}(\text{jitter}) - \text{abs}(\text{jitter}) = 0.$$

Therefore it is unclear to one having ordinary skill in the art how to make/use the invention as claimed to determine a mean opinion score from statistical analysis of a "differential jitter" when the "differential jitter" is always zero.

Claim 9 is similarly rejected under 35 U.S.C. 112, first paragraph, for its recitation of "means for extracting a set of parameters...means for generating an estimated mean opinion score in dependence upon said set of parameters; characterised in that the means for extracting further comprises means for generating a jitter parameter...means for generating a long term average jitter parameter for said stored packet in dependence upon the value of said jitter parameter for said stored packet and the value of said jitter parameter for any preceding stored packets; and means for generating a differential jitter parameter in dependence upon the jitter parameter and the long term average jitter differential parameter."

Claims 2 and 3 are also rejected as lacking enablement because they include limitations for determining a maximum value and variance value, respectively, of "said differential jitter parameter for a sequence of stored packets". As noted above, however, the resulting "differential jitter parameter" as explicitly defined in the specification always produces a value of zero. Therefore, it is unclear to one having ordinary skill in the art how to use the invention as claimed to generate a pertinent mean opinion score for a maximum value, or variance value, of a sequence of zero values.

Claims 4 and 5-8 are rejected under 35 U.S.C. 112, first paragraph, because they incorporate the lack of enablement present in their respective parent claims.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is considered to be vague and indefinite because in claim 1, lines 17-18, reference is made to a step of "generating a jitter parameter for each of a sequence of stored packets". Claim 1, however, already presents "storing a sequence of intercepted packets associated with a call...extracting a set of parameters from said sequence of packets". Therefore, it is unclear to one having ordinary skill in the art as to whether the "generating a jitter parameter for each of a sequence of stored

packets” refers to the previously presented “sequence of intercepted packets associated with a call” or a different sequence of stored packets. Also, since the previous limitation of “storing a sequence of intercepted packets associated with a call” only stores one sequence of packets, it unclear whether the step of “generating a jitter parameter for each of a sequence of stored packets” is generating a jitter parameter for each of a sequence of stored packets, as claimed, or generating a jitter parameter for each packet of a sequence of stored packets.

Claim 1 is further considered to be vague and indefinite because lines 30-32 recite, “generating a differential jitter parameter in dependence upon the jitter parameter and the long term average jitter differential parameter”. In this passage it is first unclear to one having ordinary skill in the art as to what “the jitter parameter” refers since claim 1 already presents “said jitter parameter for said stored packet” and “said jitter parameter for any preceding stored packets”. Therefore, it is unclear to one having ordinary skill in the art as to whether “the jitter parameter” refers to the jitter parameter for the stored packet or the preceding stored packet. This limitation is also unclear to one having ordinary skill in the art because it refers to “the long term average jitter differential parameter” (emphasis added) while only a “long term average jitter parameter” has been presented, thereby rendering unclear whether “the long term average jitter differential parameter” refers to the previously presented “long term average jitter parameter” or a different parameter altogether.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, because it attempts to further limit claim 2 to determine an average for “a sequence of said maximum

values”, while parent claim 2 only determines “a maximum value” for “a sequence of stored packets”. Therefore, it is unclear to one having ordinary skill in the art as to what “maximum valuesu” (emphasis added) are being referred.

Claim 6 is similarly rejected as being vague and indefinite because it attempts to further limit claim 3 to determine an average for “a sequence of said variance values” while parent claim 3 only determines “a variance value” for “a sequence of stored packets”. Therefore, it is unclear to one having ordinary skill in the art as to what “variance valuesu” (emphasis added) are being referred.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, because it includes a limitation for “determining an average for a sequence of said maximum values” while there is no previous mention of any “maximum values”. Therefore, it is unclear to one having ordinary skill in the art as to what “said maximum values” refers.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite because it recites “[a] computer readable medium carrying a computer program for implementing the method according to claim 1” while claim 1 recites a “method of assessing speech quality transmitted via a packet based telecommunications network...”. Therefore, claim 7 is considered to be ambiguous because it attempts to further limit a method with an apparatus, thereby incorporating both product and process subject matter.

Claim 8 is similarly rejected under 35 U.S.C. 112, second paragraph, as being indefinite for attempting to further limit a “method of assessing speech quality transmitted via a packet based telecommunications network...” with “[a] computer

program", thereby ambiguous for incorporating both product and process subject matter.

Claim 9 is considered to be vague and indefinite because in claim 9, lines 17-18, reference is made to "means for generating a jitter parameter for each of a sequence of stored packets". Claim 9, however, already presents "means for storing a sequence of intercepted packets associated with a call...means for extracting a set of parameters from said sequence of packets". Therefore, it is unclear to one having ordinary skill in the art as to whether the "means for generating a jitter parameter for each of a sequence of stored packets" refers to the previously presented "sequence of intercepted packets associated with a call" or with a different sequence of stored packets. Also, since the previous limitation of "means for storing a sequence of intercepted packets associated with a call" only stores one sequence of packets, it is unclear whether the "means for generating a jitter parameter for each of a sequence of stored packets" is generating a jitter parameter for each of a sequence of stored packets, as claimed, or generating a jitter parameter for each packet of a sequence of stored packets.

Claim 9 is further considered to be vague and indefinite because lines 30-32 recite, "means for generating a differential jitter parameter in dependence upon the jitter parameter and the long term average jitter differential parameter". In this passage it is first unclear to one having ordinary skill in the art as to what "the jitter parameter" refers since claim 9 already presents "said jitter parameter for said stored packet" and "said jitter parameter for any preceding stored packets".

Therefore, it is unclear to one having ordinary skill in the art as to whether “the jitter parameter” refers to the jitter parameter for the stored packet or the preceding stored packet. This limitation is also unclear to one having ordinary skill in the art because it refers to “the long term average jitter differential parameter” (emphasis added) while only a “long term average jitter parameter” has been presented, thereby rendering unclear whether “the long term average jitter differential parameter” refers to the previously presented “long term average jitter parameter” or a different parameter altogether.

Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, because they incorporate the lack of clarity present in their respective parent claims.

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claims 7 and 8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 7 is rejected under 35 U.S.C. 101, as being directed to non-statutory subject matter, because it recites “[a] computer readable medium carrying a computer program for implementing the method according to claim 1” while claim 1 recites a “method of assessing speech quality transmitted via a packet based telecommunications network...”. Therefore, claim 7 is rejected under 35 U.S.C. 101

since the claims are directed to neither a "process" nor a "machine" but rather embrace or overlap two different statutory classes of inventions set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only.

Claim 8 is similarly rejected under 35 U.S.C. 101, as being directed to non-statutory subject matter for attempting to further limit a "method of assessing speech quality transmitted via a packet based telecommunications network..." with "[a] computer program", thereby providing a claim directed to neither a "process" nor a "machine" but rather embracing or overlapping two different statutory classes of inventions set forth in 35 U.S.C. 101.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1, 2, and 7-9, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisco Systems, "Evaluate Network Performance with Cisco IOS[®] Service Assurance Agent" (Hereafter "Cisco") in view of U.S. Patent No. 6,665,317 to Scott and U.S. Patent Application Publication No. 2003/0086425 to Bearden et al.

With respect to claim 1, Cisco discloses a method of assessing speech quality transmitted via a packet based telecommunications network (i.e. voice over IP) (page 66) comprising the steps of storing a sequence of intercepted packets associated with a call (i.e. VoIP call) (page 70), each packet containing speech data (i.e. voice) (pages 8 and 66), and an indication of a transmission time of said packet (i.e. STx) (page 65); storing with each intercepted packet an indication of an intercept time of said packet (i.e. RTx) (page 65); extracting a set of parameters from said sequence of packets wherein the extracting step comprises the sub steps of generating a jitter parameter (i.e. JitterSD) for each of a sequence of stored packets in dependence upon the difference between the transmission time of a stored packet (i.e. ST2) and the transmission time of a preceding stored packet of the sequence (i.e. ST1); and the difference between the intercept time of said stored packet (i.e. RT2) and the intercept time of said preceding packet (RT1) (page 65); and generating a plurality of other statistical jitter parameters (i.e. SumOfPositivesSD) for said stored packet in dependence upon said jitter parameter for said stored packet and said jitter parameter for any preceding stored packets (pages 66 and 72).

With respect to claim 2, Cisco also discloses determining a maximum value of the other statistical jitter parameters (i.e. MaxOfPositivesSD) (page 73).

With respect to claims 7 and 8, Cisco discloses implementing the method as a object-oriented logic language probe in accordance with a process agent deployed and run on customer presence equipment (i.e. CPE) (pages 165-172) including a

computer readable medium (i.e. memory) carrying the instruction to carry out the method when executed by a CPU (pages 143-144 and 154).

With respect to claim 9, Cisco discloses an apparatus for assessing speech quality transmitted via a packet based telecommunications network (i.e. voice over IP) (page 66) comprising means, such as an object-oriented logic language probe in accordance with a process agent deployed and run on customer presence equipment (i.e. CPE) (pages 165-172) including a computer readable medium (i.e. memory) carrying the instruction to carry out the method when executed by a CPU (pages 143-144 and 154), for storing a sequence of intercepted packets associated with a call (i.e. VoIP call) (page 70), each packet containing speech data (i.e. voice) (pages 8 and 66), and an indication of a transmission time of said packet (i.e. STx) (page 65); means for storing with each intercepted packet an indication of an intercept time of said packet (i.e. RTx) (page 65); means for extracting a set of parameters from said sequence of packets wherein the means for extracting comprises means for generating a jitter parameter (i.e. JitterSD) for each of a sequence of stored packets in dependence upon the difference between the transmission time of a stored packet (i.e. ST2) and the transmission time of a preceding stored packet of the sequence (i.e. ST1); and the difference between the intercept time of said stored packet (i.e. RT2) and the intercept time of said preceding packet (RT1) (page 65); and means for generating a plurality of other statistical jitter parameters (i.e. SumOfPositivesSD) for said stored packet in

dependence upon said jitter parameter for said stored packet and said jitter parameter for any preceding stored packets (pages 66 and 72).

As noted above, the invention of Cisco teaches many of the features of the claimed invention and while the invention of Cisco does teach extracting a set of jitter parameters to assess speech quality of a VoIP network as well as determining a maximum of the extracted parameters, Cisco does not explicitly include means for determining a long term average or differential jitter parameter of the extracted parameters or generating an estimated mean opinion score in dependence upon said set of parameters.

Scott teaches a method, system, and computer program product for managing jitter of packets across a VoIP system (column 1, line 65 to column 2, line 2) that uses a sliding window to calculate a long term jitter parameter in dependence upon a value of jitter for a stored packet and a value of jitter for any preceding stored packets (column 5, lines 22-23 and 41-46) and a differential jitter (i.e. jitter variance) in dependence upon the jitter parameter and the long term jitter parameter (column 5, lines 22-25).

Bearden teaches network traffic generation and monitoring systems and methods for their use in testing frameworks for determining suitability of a network for target applications, such as VoIP network applications (0006, lines 1-10), comprising means for extracting a set of speech quality parameters, including jitter, and, generating an estimated mean opinion score in dependence upon the set of speech quality parameters (0085, lines 1-13).

It would have been obvious to one having ordinary skill in the art to modify the invention of Cisco to explicitly include means for determining a long term average and differential jitter parameter of the extracted parameters, as taught by Scott, because, as suggested by Scott, the combination would have improved the speech quality analysis of Cisco by determining a more complete group of jitter parameters including a jitter variation which would provide an indication as to the changes in the size of a packet from the start to destination thereby allowing the user to monitor such a size change for determining a point of insufficient quality (column 3, line 66 to column 4, line 4).

It would have been obvious to one having ordinary skill in the art to modify the invention of Cisco to explicitly include means for generating an estimated mean opinion score in dependence upon said set of parameters, as taught by Bearden, because, as suggested by Bearden, the combination would have improved the speech quality analysis of Cisco by employing a widely used, accepted, and understood scale of speech quality (0085, lines 1-13) and reducing the burden of a user to interpret the jitter results by instead providing the result in a clearly understandable numerical index of quality (0238, lines 24-38).

15. Claims 3-6, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisco in view of Scott and Bearden et al. and further in view of U.S. Patent Application Publication No. 2003/0018450 to Carley.

As noted above, Cisco in combination with Scott and Bearden teaches many of the features of the claimed invention and while the invention of Cisco, Scott, and Bearden does teach extracting a set of parameters from a sequence of packets including a jitter parameter, long term average jitter parameter, differential jitter parameter, and maximum value of the extracted parameters, the combination does not specifically include determining a variance value of the measured parameter and a subsequent average of the maximum and/or variance value.

Carley teaches a system and method for providing composite variance analysis for network operation of a packet based network (0002, lines 1-9 and 0017, line 1 to 0024, line 3) comprising means for extracting and storing a jitter parameter performance metric for a sequence of packets (0041, lines 1-23) determining a variance statistic for the performance metric and determining a subsequent standard deviation of the determined variance statistic (0047, line 4 to 0048, line 7), wherein the variance statistic includes a maximum value and standard deviation of the performance metric (0068, lines 11-19). Therefore, Carley teaches determining both a maximum of the performance metric followed by a standard deviation of the maximum as well as a standard deviation of the performance metric followed by a subsequent standard deviation. It is further considered inherent that in order to determine each standard deviation, an average and variance must first be determined (see for example, Internet Glossary of Statistical Terms, "Variance" and "Standard Deviation").

It would have been obvious to one having ordinary skill in the art to modify the invention of Cisco, Scott, and Bearden to include determining a variance value of the measured parameter and a subsequent average of the maximum and/or variance value, as taught by Carley, because the invention of Cisco, Scott, and Bearden does teach a method for assessing the quality of speech packets but provides no significant method for determining when a speech quality degrades below a desired level and the invention of Carley suggests that the combination would have improved the method of Cisco, Scott, Bearden and by allowing the user to determine the quality with greater detail by determining how the performance of a given network server is performing with respect to any desired performance metric over time as well as determine whether the performance of a network service at any particular time is outside of acceptable limits (0040, lines 1-28).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

Internet Glossary of Statistical Terms, "Variance" and "Standard Deviation" teaches the definitions for "Variance" and "Standard Deviation" as well as that in order to calculate the variance, a mean/average must first be determined, as well as that in order to calculate the standard deviation, a variance must first be determined.

Rix, et al, "The perceptual analysis measurement system for robust end-to-end speech quality assessment" teaches an objective model designed to evaluate the perceived speech quality of voice over IP.

Rix et al, "Perceptual evaluation of speech quality (PESQ)-a new method for speech quality assessment of telephone networks and codecs" teaches a new model for speech quality assessment for use across a wider range of network conditions including analog connections, packet loss and variable delay.

U.S. Patent Application Publication No. 2003/0072269 to Teruhi et al. teaches a data transmission control method, program therefore and data transmission unit for determining packet quality.

U.S. Patent Application Publication No. 2002/0141392 to Tezuka et al. teaches a gateway apparatus and voice data transmission method.

U.S. Patent Application Publication No. 2002/0051464 to Sin et al. teaches a method for monitoring the quality of transmission across packet-based networks.

U.S. Patent No. 6,928,473 to Sundaram et al. teaches a method for measuring network jitter on application packet flows.

U.S. Patent No. 6,363,429 to Ketcham teaches a method and system for automatic determination of priority data streams on computer networks.

U.S. Patent No. 6,327,274 to Ravikanth teaches a method for estimating relative skew between clocks in packet networks.

17. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrey R. West
Examiner – AU 2857

December 11, 2005